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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/559,378

12/06/2005

Toshinori Isobe

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EXAMINER

JOHNSON, KEVIN M

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

10/17/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/559,378	Applicant(s) ISOBE ET AL.	
	Examiner KEVIN M. JOHNSON	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/14/2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4 and 5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4 and 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Status

1. Claims 4 and 5 have been amended. Claims 1-3 and 6-10 have been cancelled.

Claims 4 and 5 are pending and presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imanari et al. (US 7011770).

In regard to claim 4, Imanari teaches a phosphor that comprises a compound of represented by the formula $\text{Ca}_{1-x-y}\text{Sr}_x\text{Eu}_y\text{MgSi}_2\text{O}_6$ where $0 \leq x \leq 0.5$ and $0.001 \leq y \leq 0.1$ (column 2, lines 13-20). The phosphor is excited by a vacuum ultraviolet source to cause light emission (column 3, lines 27-32). Imanari teaches that phosphors that are excited by vacuum ultraviolet radiation may be used in light emitting devices such as plasma display panels and rare gas lamps (column 1, lines 10-12). An ultraviolet excited light emitting device is not expressly taught by Imanari.

It is well established that when claimed ranges overlap or lie within the ranges disclosed by the prior art a *prima facie* case of obviousness exists (MPEP 2144.05), and therefore the teachings of Imanari render the required compound obvious. It would have been further obvious to one skilled in the art at the time of the invention to produce an ultraviolet excited light emitting device comprising a phosphor that meets the requirements of the claim. Utilizing the required phosphor in an ultraviolet excited light emitting device would have been motivated by the teaching in Imanari that the phosphor is excited by ultraviolet radiation and that ultraviolet excited phosphors are commonly used in ultraviolet excited light emitting devices.

In regard to claim 5, Imanari teaches that the phosphor is capable of excitation by irradiation with vacuum ultraviolet light with a wavelength of 146 nm (column 3, lines

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27-32). While Imanari does not expressly teach that the phosphor is capable of excitation by a wavelength of 200-400 nm, it would have been obvious to one skilled in the art at the time of the invention that in an ultraviolet excited light emitting device utilizing the required phosphor ultraviolet radiation with a wavelength of 200-400 nm could be used. This modification would have been motivated by the teaching in Imanari that phosphors of the required type are capable of excitation by vacuum ultraviolet light, of which may have a wavelength of 200 nm. Further, it would necessarily follow that a phosphor of the required type would be capable of excitation by ultraviolet light with a wavelength of 200-400 nm.

Response to Arguments

6. Applicant's arguments, see pages 4 and 5, filed 7/14/2008, with respect to the rejection(s) of claim(s) 4 and 5 under USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the newly discovered prior art Imanari et al.

Terminal Disclaimer

7. The terminal disclaimer filed on 7/14/2008 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Application Number 10/556680 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN M. JOHNSON whose telephone number is

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(571)270-3584. The examiner can normally be reached on Monday-Friday 7:30 AM to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jerry A Lorengo/
Supervisory Patent Examiner, Art Unit 1793

/Kevin M Johnson/
Examiner, Art Unit 1793